

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A retroreflective sheet for security, comprising:
 - a surface layer;
 - a binder layer;
 - high-refractive-index glass beads;
 - a print resin layer;
 - a focusing layer;
 - a metal layer; and
 - a pressure-sensitive adhesive layer, in this order along a thickness direction of the retroreflective sheet for security,
 - wherein the print resin layer is formed on a part of the binder layer opposite to a surface layer side, and when being observed from the surface layer side in the thickness direction of the retroreflective sheet for security, the print resin layer forms a mark,
 - the high-refractive-index glass beads are disposed in the binder layer on which the print resin layer is not formed, and the high-refractive-index glass beads are not present between the print resin layer and the metal layer,
 - a position for disposing the high-refractive-index glass beads does not coincide with a position of the print resin layer at all, when being observed from the surface layer side in the thickness direction of the retroreflective sheet for security, and
 - the print resin layer is made of a composition containing a room temperature curing resin as a main component.
2. (Original) The retroreflective sheet for security according to claim 1, wherein the binder layer is made of a composition containing a thermosetting resin.

3. (Original) The retroreflective sheet for security according to claim 1, further comprising a self-destructive layer between the focusing layer and the metal layer.
4. (Original) The retroreflective sheet for security according to claim 3, wherein the self-destructive layer is made of a resin composition having low adhesion with the metal layer.
5. (Original) The retroreflective sheet for security according to claim 1, further comprising a self-destructive layer, wherein the pressure-sensitive adhesive layer is disposed between the metal layer and the self-destructive layer.
6. (Original) The retroreflective sheet for security according to claim 5, wherein the self-destructive layer is a film comprising a hologram or a diffraction grating, or a film obtained by subjecting a fragile film or a supporting film to a regular or irregular releasing treatment.
7. (Original) The retroreflective sheet for security according to claim 1, wherein the surface layer and the binder layer are made of the same resin composition.
8. (Previously Presented) The retroreflective sheet for security according to claim 1, which can be colored by allowing a sublimable dye to penetrate an inside of an image formation resin layer by heating, wherein the surface layer comprises:
 - a surface resin layer that has a weak affinity with the sublimable dye and allows the sublimable dye to penetrate;
 - the image formation resin layer having an affinity with the sublimable dye; and
 - a dye migration preventive resin layer for preventing migration of the sublimable dye, in this order from a surface side of the surface layer.
9. (Original) The retroreflective sheet for security according to claim 8, wherein the dye migration preventive resin layer is a resin layer containing a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more as a main component.

10. (Original) The retroreflective sheet for security according to claim 8, wherein a film thickness of the dye migration preventive resin layer ranges from 1 μm to 100 μm inclusive.

11. (Original) The retroreflective sheet for security according to claim 8, wherein the dye migration preventive resin layer is a biaxially stretched film that is stretched by 10% or more in a winding direction and in a width direction respectively.

12. (Original) The retroreflective sheet for security according to claim 11, wherein a shrinkage ratio of the biaxially stretched film in the winding direction of the film after being heated at 150°C for 30 minutes is 1.0% or less.

13. (Original) The retroreflective sheet for security according to claim 8, wherein the image formation resin layer is a resin layer containing a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive.

14. (Previously Presented) An original sheet of a retroreflective sheet for security that is for the retroreflective sheet for security according to claim 1, comprising:

a surface layer;

a binder layer;

high-refractive-index glass beads;

a print resin layer;

a focusing layer; and

a metal layer, in this order along a thickness direction of the original sheet of the retroreflective sheet for security,

wherein the print resin layer is formed on a part of the binder layer opposite to a surface layer side, and when being observed from the surface layer side in the thickness direction of the original sheet of the retroreflective sheet for security, the print resin layer forms a mark,

the high-refractive-index glass beads are disposed in the binder layer on which the print resin layer is not formed, and the high-refractive-index glass beads are not present between the print resin layer and the metal layer,

a position for disposing the high-refractive-index glass beads does not coincide with a position of the print resin layer at all when being observed from the surface layer side in the thickness direction of the original sheet of the retroreflective sheet for security, and

the print resin layer is made of a composition containing a room temperature curing resin as a main component.

15. (Previously Presented) A method for manufacturing the retroreflective sheet for security according to claim 1, comprising:

laminating the binder layer on the surface layer;

printing on the binder layer so as to form the print resin layer;

curing the print resin layer at room temperature;

heating the binder layer to a temperature at which the binder layer generates stickiness;

embedding the high-refractive-index glass beads in a part of the binder layer where the print resin layer is not formed, so as to dispose the high-refractive-index glass beads in the binder layer on which the print resin layer is not formed;

laminating the focusing layer on the binder layer, the print resin layer and the high-refractive-index glass beads;

forming the metal layer on the focusing layer; and

forming the pressure-sensitive adhesive layer on the metal layer.

16. (Original) The method for manufacturing the retroreflective sheet for security according to claim 15, wherein the surface layer comprises:

a surface resin layer that has a weak affinity with a sublimable dye and allows the sublimable dye to penetrate;

an image formation resin layer having an affinity with the sublimable dye; and

a dye migration preventive resin layer for preventing migration of the sublimable dye in this order from a surface side of the surface layer,

the method comprising laminating the binder layer on the dye migration preventive resin layer.

17. (Previously Presented) An image-added retroreflective sheet for security, comprising:

- a surface layer that comprises: a surface resin layer that has a weak affinity with a sublimable dye and allows the sublimable dye to penetrate;
- a print layer that has an affinity with the sublimable dye and comprises an image formed in a thickness direction of an image formation resin layer by the sublimable dye; and
- a dye migration preventive resin layer for preventing migration of the sublimable dye;
- a binder layer;
- high-refractive-index glass beads;
- a print resin layer;
- a focusing layer;
- a metal layer; and
- a pressure-sensitive adhesive layer, in this order along a thickness direction of the image-added retroreflective sheet for security,

wherein the print resin layer is formed on a part of the binder layer opposite to a surface layer side, and when being observed from the surface layer side in the thickness direction of the image-added retroreflective sheet for security, the print resin layer forms a mark,

the high-refractive-index glass beads are disposed in the binder layer on which the print resin layer is not formed, and the high-refractive-index glass beads are not present between the print resin layer and the metal layer,

a position for disposing the high-refractive-index glass beads does not coincide with a position of the print resin layer at all, when being observed from the surface resin layer side in the thickness direction of the image-added retroreflective sheet for security, and

the print resin layer is made of a composition containing a room temperature curing resin as a main component.

18. (Original) The image-added retroreflective sheet for security according to claim 17, further comprising a self-destructive layer between the focusing layer and the metal layer.

19. (Currently Amended) A method for manufacturing the image-added retroreflective sheet for security according to claim 17, comprising:

printing on a transfer paper by using an ink containing the sublimable dye;
contacting an image-formed surface of the transfer paper with [[the]] a surface resin layer
of [[the]] a retroreflective sheet for security, the retroreflective sheet for security comprising:
according to claim 8

a surface layer;

a binder layer;

high-refractive-index glass beads;

a print resin layer;

a focusing layer;

a metal layer; and

a pressure-sensitive adhesive layer, in this order along a thickness direction of the
retroreflective sheet for security,

the surface layer, including:

the surface resin layer that has a weak affinity with the sublimable dye and
allows the sublimable dye to penetrate,

an image formation resin layer having an affinity with the sublimable dye,
and

a dye migration preventive resin layer for preventing migration of the
sublimable dye, in this order from a surface side of the surface layer;

wherein the print resin layer is formed on a part of the binder layer opposite to a
surface layer side, and when being observed from the surface layer side in the thickness
direction of the retroreflective sheet for security, the print resin layer forms a mark,

the high-refractive-index glass beads are disposed in the binder layer on which the
print resin layer is not formed, and the high-refractive-index glass beads are not present
between the print resin layer and the metal layer,

a position for disposing the high-refractive-index glass beads does not coincide
with a position of the print resin layer at all, when being observed from the surface layer
side in the thickness direction of the retroreflective sheet for security,

the print resin layer is made of a composition containing a room temperature
curing resin as a main component;

heat-treating subsequently so as to sublimate the sublimable dye, allow the sublimable dye to penetrate the surface resin layer of the retroreflective sheet and form an image in the image formation resin layer of the retroreflective sheet for obtaining [[a]] the print layer of the image-added retroreflective sheet; and

removing the transfer paper.

20. (Currently Amended) A method for manufacturing the image-added retroreflective sheet for security according to claim 17, comprising:

forming, on [[the]] a surface resin layer of [[the]] a retroreflective sheet for security, the retroreflective sheet for security comprising: according to claim 8

a surface layer;

a binder layer;

high-refractive-index glass beads;

a print resin layer;

a focusing layer;

a metal layer; and

a pressure-sensitive adhesive layer, in this order along a thickness direction of the retroreflective sheet for security,

the surface layer, including:

the surface resin layer that has a weak affinity with the sublimable dye and allows the sublimable dye to penetrate,

an image formation resin layer having an affinity with the sublimable dye, and

a dye migration preventive resin layer for preventing migration of the sublimable dye,

in this order from a surface side of the surface layer;

wherein the print resin layer is formed on a part of the binder layer opposite to a surface layer side, and when being observed from the surface layer side in the thickness direction of the retroreflective sheet for security, the print resin layer forms a mark,

the high-refractive-index glass beads are disposed in the binder layer on which the print resin layer is not formed, and the high-refractive-index glass beads are not present between the print resin layer and the metal layer,

a position for disposing the high-refractive-index glass beads does not coincide with a position of the print resin layer at all, when being observed from the surface layer side in the thickness direction of the retroreflective sheet for security,

the print resin layer is made of a composition containing a room temperature curing resin as a main component,

a releasable ink receptive layer that can display by print, has absorption of the ink containing the sublimable dye on a surface that is not in contact with the surface resin layer of the retroreflective sheet, can be subjected to heat treatment for sublimating the sublimable dye and allowing the sublimable dye to penetrate the surface resin layer of the retroreflective sheet so as to form an image in the image formation resin layer of the retroreflective sheet, and can be released in a state of a film from the surface resin layer of the retroreflective sheet after the heat treatment;

printing on the releasable ink receptive layer by using the ink containing the sublimable dye;

heat-treating subsequently so as to sublimate the sublimable dye, allow the sublimable dye to penetrate the surface resin layer of the retroreflective sheet and form an image in the image formation resin layer of the retroreflective sheet for obtaining the print layer of the image-added retroreflective sheet; and

releasing the releasable ink receptive layer.